6. (Amended) DNA vaccine according to claim 4 , characterized in that the mixture contains $\geq 10^3$ and preferably $\geq 10^4$ DNA molecules which differ from each other in their nucleic acid sequence.

A2

7. (Amended) DNA vaccine according to claim 4, characterized in that it codes for a mixture of structurally different GP120 proteins of HIV, in which the vaccine contains a mixture of DNA molecules, the nucleic acid sequences of which differ from each other in the region coding for the V2 loop and/or in the region coding for the V3 loop.

11. (Amended) Nucleic acid sequence according to claim 9 , characterized in that the sequence is modified by the introduction of silent mutations.

A3

12. (Amended) Nucleic acid sequence according to claim 9, characterized in that it contains the sequence given in SEQ ID NO: 9.

17. (Amended) Nucleic acid sequence according to claim 15 or a single-stranded nucleic acid sequence which contains the region coding for the V2 loop and/or the region of GP120 coding for the V3 loop, characterized in that in the V3 loop a 247 bp-long Bg1II-XbaI fragment or a 283 bp-long Bg1II-NheI fragment is exchanged for a modified fragment, and in the V2 loop a 139 bp-long PstI-Bc1I fragment or a 339 bp-long PstI-EcoRI fragment is exchanged for a modified fragment, the fragment/the fragments in each case containing inosine, a nucleic acid exchange or a mutation at at least 6 positions, the nucleic acid sequence being complementary to a nucleic acid sequence characterized in that it contains the sequence given in SEQ ID NO: 12 , characterized in that the fragment/the fragments contain(s) inosine, a nucleic acid exchange or a mutation at 9 to 20 positions.

A4

18. (Amended) Double-stranded DNA which comprises hybrids of the single-stranded nucleic acid sequence according to claim 15 with a single-stranded nucleic

acid sequence which contains the region coding for the V2 loop and/or the region of GP120 coding for the V3 loop, characterized in that in the V3 loop a 247 bp-long Bg1II-XbaI fragment or a 283 bp-long Bg1II-NheI fragment is exchanged for a modified fragment, and in the V2 loop a 139 bp-long PstI-Bc1I fragment or a 339 bp-long PstI-EcoRI fragment is exchanged for a modified fragment, the fragment/the fragments in each case containing inosine, a nucleic acid exchange or a mutation at at least 6 positions, the nucleic acid sequence being complementary to a nucleic acid sequence characterized in that it contains the sequence given in SEQ ID NO: 12.

A4 cont.

27. (Amended) Expression vector, characterized in that it contains an inserted nucleic acid sequence according to claim 9.

A5

33. (Amended) Vector mixture according to claim 30, characterized in that the plasmids can be expressed in *E. coli* as host cell.

A6

34. (Amended) Vector mixture according to claim 30, characterized in that the plasmids can be expressed in eukaryotic cells, preferably in Cos, CHO or BHK cells, as host cells.

40. (Amended) Process according to claim 38 , characterized in that the nucleic acid sequence coding for a viral protein is the sequence according SEQ ID NO: 1 or SEQ ID NO: 11 or a fragment of same.

A7

41. (Amended) Process for the preparation of the vector mixture according to claim 33, characterized in that plasmids, the nucleic acid sequences of which in each case differ from each other in the region coding for the V2 loop and/or in the region coding for the V3 loop in each case through random distribution of the bases at the

varied nucleotide positions, are ligated into a vector which can be expressed in host cells.

43. (Amended) Process for the preparation of the host cells composing transforming *E.coli.* with a vector mixture according to claim 30 .

44. (Amended) Process for the preparation of a protein vaccine which comprises a mixture of viral protein molecules, characterized in that the molecules are sequence variants of a single viral protein or of part of same, the mixture containing $\geq 10^2$ sequence variants, which is obtainable by expression of a plasmid-DNA mixture which, because of the variation of nucleotide positions, contains randomly distributed sequence combinations , said process comprising cultivating host cells according to claim 35 under conditions which allow the expression of the mixture of viral protein sequence variants.

45. (Amended) Process for the preparation of a DNA vaccine which codes for a mixture of structurally different virus proteins, characterized in that the vaccine contains a mixture of sequence variants of a viral DNA molecule or of part of same, the mixture containing $\geq 10^2$ DNA molecules which differ from each other in their nucleic acid sequence, where the mixture, because of the variation of nucleotide positions, contains randomly distributed sequence combinations wherein said process is carried out according to claim 41 , wherein the plasmids are ligated into a vector which can be expressed in host cells of the organism to be vaccinated.

46. (Amended) A method of preparing a vaccine comprising forming a mixture of structurally different viral proteins which are sequence variants of a viral protein or of part of same, for the prevention and/or therapy of a virus infection in humans.

47. (Amended) A method of preparing a vaccine comprising forming a mixture according to claim 23 for the prevention and/or therapy of a HIV infection in humans.

48. (Amended) A method of preparing a vaccine comprising forming a mixture of DNA molecules which code for sequence variants of a viral protein or of part of same, for the prevention and/or therapy of a virus infection in humans.

49. (Amended) A method of preparing a vaccine comprising forming a nucleic acid mixture according to claim 19 for the prevention and/or therapy of a virus infection in humans.

50. (Amended) A method of preparing a vaccine comprising forming the nucleic acid mixture according to claim 19 for the expression in host cells selected from the group consisting of *E. coli*, Cos, CHO and BHK cells.

51. (Amended) A method of producing a protein mixture which comprises sequence variants of the GP120 protein, characterized in that it is a mixture of proteins which contain amino acid sequences which in each case differ from each other in the V2 loop and/or in the V3 loop, the mixture being obtainable by expression of a plasmid DNA mixture which, because of the variation of nucleotide positions, contains randomly distributed sequence combinations; said method comprising expressing a vector mixture which contains a mixture of plasmids which contains an inserted double-stranded DNA which comprises hybrids of the single-stranded nucleic acid sequence according to claim 15 with a single-stranded nucleic acid sequence which contains the region coding for the V2 loop and/or the region of GP120 coding for the V3 loop, characterized in that in the V3 loop a 247 bp-long Bg1II-XbaI fragment or a 283 bp-long Bg1II-NheI fragment is exchanged for a modified fragment, and in the V2 loop a 139 bp-long PstI-Bc1I fragment or a 339 bp-long PstI-EcoRI fragment is exchanged for a modified fragment, the fragment/the fragments in each case containing inosine, a nucleic acid exchange or a mutation at at least 6 positions, the nucleic acid sequence being complementary to a nucleic acid sequence characterized in that it contains the sequence given in SEQ ID NO: 12; characterized in that the nucleic acid sequences of the plasmids differ in each case from each other in the region coding for the V2 loop and/or in the region coding for the V3 loop, where the mixture of the plasmids, because

of the variation of nucleotide positions, contains randomly distributed sequence combinations .

A8 cont

52. (Amended) A method of preparing a protein mixture which comprises sequence variants of the GP120 protein, characterized in that it is a mixture of proteins which contain amino acid sequences which in each case differ from each other in the V2 loop and/or in the V3 loop, the mixture being obtainable by expression of a plasmid DNA mixture which, because of the variation of nucleotide positions, contains randomly distributed sequence combinations, said method comprising culturing a host cell according to claim 35 .

A9

54. (Amended) Pharmaceutical composition for the prevention and/or therapy of a virus infection, characterized in that it comprises a protein mixture and a nucleic acid mixture, the protein mixture comprising sequence variants of a viral protein or of part of same, and the nucleic acid mixture comprising DNA molecules which code for sequence variants of a viral protein or of part of same, said composition comprising a protein mixture according to claim 23 and a nucleic acid mixture which comprises double-stranded DNAs, the nucleic acid sequences of which are derived from the *env* sequence in SEQ ID NO: 1 or SEQ ID NO: 11 or a fragment of same, characterized in that the nucleic acid sequences in each case differ from each other in the region coding for the V2 loop and/or in the region coding for the V3 loop .

REMARKS

The above amendments are made to place the claims in a more traditional format. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version With Markings To Show Changes Made**."